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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,049	02/17/2004	Sergio R. Mohedas	1856-40100 (9952.0-02)	9685

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ConocoPhillips Company - I. P. Legal
P.O. Box 2443
Bartlesville, OK 74005

EXAMINER

LAO, MARIALOUISA

ART UNIT	PAPER NUMBER
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1621

MAIL DATE	DELIVERY MODE
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01/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,049	Applicant(s) MOHEDAS ET AL.	
	Examiner M. Louisa Lao	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 and 40-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 and 40-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see REMARKS, filed 11/16/07, with respect to the rejection(s) of claim(s) 1-52 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made, see discussion below.

2. The cancellation of claim 49 and new claim 53 are acknowledged.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-38 and 40-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singleton et al. (US20010036967 11/1/01 *equivalent to* US6740621, US'621), Singleton et al. (US6262132, US'132) and Wright et al. (US6962947, US'947).

7. The instant claims are drawn to a method of making a catalyst for use in a hydrocarbon synthesis reactor, comprising a reduction of a catalyst, mixing with a stripped hydrocarbon, substantially free of dissolved oxygen, to form a slurry and contacting a reactant syngas (hydrogen and carbon monoxide) under conversion promoting conditions to convert to at least a portion of the reactant gas to hydrocarbons. The catalyst metal comprises at least one catalytic metal selected from the group consisting of metals from Groups 8, 9, 10 of the Periodic Table. The catalyst further comprises a support and a promoter, and a particle size between about 30 μ and about 150 μ . The reducing gas comprises, *inter alia*, hydrogen which has a volumetric flow rate between about 0.1 m³/hr/kg catalyst and about 10 m³/hr/kg catalyst, a temperature between about 200°C and about 500°C, at a pressure between about 0.1 psig and about 50 psig, reduction vessel is selected from the group consisting of, *inter alia*, fluidized bed, which comprises a gas recycle loop that allows the reducing gas to be recycled back to the reduction vessel.

8. US'132 (column 11) and US'621 (columns 11-12) teach catalyst activation and subsequent use in Fischer-Tropsch Reaction Processes, where the catalyst is activated/reduced in a hydrogen-containing gas by slowly increasing the temperature of the catalyst, preferably at a rate of about 0.5-2.0°C/minute, to approximately 250-400°C (preferably about 350°C) and holding at the desired temperature for at least 2 hours. After reduction, the catalyst is preferably cooled in flowing nitrogen. The reducing gas preferably comprises from about 1% to 100% by volume hydrogen, with the remainder (if any) being an inert gas, typically nitrogen. The reducing gas is preferably delivered at a rate of about 2-4 (preferably about 3) liters per hour per gram of catalyst. The reduction procedure is preferably conducted in a fluidized bed reactor. The reduction procedure is most preferably conducted at conditions (i.e., temperature, flow rate,

hydrogen concentration, etc.) effective to ensure that a very low water vapor partial pressure is maintained during the procedure. The said catalysts prepared and activated can be employed in generally any Fischer-Tropsch synthesis process. For slurry bubble column and other three-phase reaction systems, the catalyst will preferably be slurried in a Fischer-Tropsch wax or in a synthetic fluid (e.g., a C₃₀-C₅₀ isoparaffin polyalphaolefin) having properties similar to those of Fischer-Tropsch wax. The catalyst slurry will preferably have a catalyst concentration in the range of from about 5% to about 40% by weight based on the total weight of the slurry.

9. US`132 and US`621 further teach that prior to initiating the reaction process, the activated catalyst will most preferably be maintained in an inert atmosphere. Before adding the catalyst thereto, the slurry fluid will preferably be purged with nitrogen or other inert gas to remove any dissolved oxygen. The slurry composition will also preferably be transferred to the reaction system under an inert atmosphere.

10. US`132 and US`621 also teach that the catalyst supports and characteristics thereto.

11. US`947 teaches the regeneration of a catalyst used in the process for synthesizing hydrocarbons. In columns 7 (lines 13-67), 8 (lines 3-37, 65-67), 9 (lines 43-44), 10 (lines 5-9, 50-51, 54-59), column 12 Example 2 (line 53), US`947 teaches the metal catalyst can have promoters, supports and can be reduced to the zero-valent state via reduction using hydrogen gas where regeneration is at a temperature in the range of from about 75°C and about 500°C, at a pressure of about 50 psig to about 350 psig.

12. The instant claims differ from the cited prior art references in the stepwise addition of the reducing gas to the catalyst and subsequent addition of the stripped hydrocarbon liquid with the reduced catalyst to make a slurry and the step contact with the syngas. However, the cited

prior art references disclose these steps and processes, where the activated/reduced catalyst is mixed with a hydrocarbon that is subjected to an inert atmosphere and the subsequent Fischer-Tropsch reaction.

13. At the time of the invention, one of ordinary skill in the art looking to improve on improving the functionality of the catalyst used in a hydrocarbon synthesis reactor, would have found it *prima facie* obvious to start with the teachings of the cited prior art references and couple said teachings a stripping step, to make applicants' process using their methodology, the, reaction specifics and parameters, thereto. The combination of the teachings of the cited prior art suggests that specific features of their invention, illustratively the "preparation of a more potent catalyst with the use of a reducing gas" may be combined with other features in accordance with the invention, such as the stripped hydrocarbon liquid mixed with the catalyst. And alternatively embodiments will be recognized by those skilled in the art and are intended to be included within the scope of the claims. Therefore, it would have been obvious to modify the combined cited prior art processes, such as by alleviating further sources of oxidation using an inert atmosphere or purging with inert gas, stripping to remove dissolved oxygen, since one of ordinary skill in the art at the time of the invention, as compelled by the norms of practice, would endeavor to develop a process to produce, then maintain then retrieve, as would-have-been-unused, the activity of a catalyst used for hydrocarbon synthesis reactors, with a reasonable expectation of success.

14. The recitation of stepwise additions, the use of different types of vessels, enumerating different types of catalysts and hydrocarbon liquids are optimization steps that are within the

normal undertaking of one of ordinary skill in the art at the time of the invention and would not require any inordinate degree of experimentation.

Optimizing such processes is *prima facie* obvious because an ordinary artisan would be motivated to use known processes from the art to make the process more efficient or explore economical advantages over the other. Merely modifying the process conditions is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U.S.P.Q. 233 (C.C.P.A. 1955).

15. Further, the method of making a catalyst for use in a hydrocarbon synthesis reactor, is given, as per the guidelines of the MPEP, its broadest reasonable interpretation in light of the disclosures in the instant specification, to encompass the process of rejuvenating a catalyst for use in a hydrocarbon synthesis reactor.

16. The adaptation of making in line with rejuvenation in the recited claims are obvious because:

Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art.

The claim would have been obvious because the design incentives or market forces provided a reason to make an adaptation, and the invention resulted from application of the prior knowledge in a predictable manner.

The claim would have been obvious because "a person of ordinary skill has a good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product, not of innovation, but of ordinary skill and common sense.

The Supreme Court in *KSR* noted that if the actual application of the technique would have been beyond the skill of one of ordinary skill in the art, then the resulting invention would not have been obvious because one of ordinary skill could not have been expected to achieve it.

17. Thus, the combined teachings of the cited prior art references fairly suggest the *prima facie* obviousness of the instant claims.

18. No claims are allowed.

Correspondence

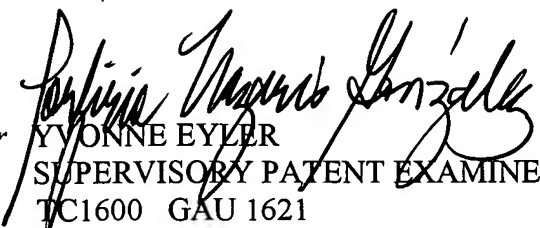
Any inquiry concerning this communication or earlier communications from the examiner should be directed to MLouisa Lao whose telephone number is 571-272-9930. The examiner can normally be reached from 8:00am to 8:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair->

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`mll01152008
MLouisa Lao
Examiner
Art Unit 1621

for 
YVONNE EYLER
SUPERVISORY PATENT EXAMINER
TC1600 GAU 1621